Progress Energy

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November 24, 2008

SERIAL: BSEP 08-0156
TSC-2007-06

10 CFR 50.90

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Subject: Brunswick Steam Electric Plant, Unit Nos. 1 and 2
Docket Nos. 50-325 and 50-324/License Nos. DPR-71 and DPR-62
Request for License Amendment - Adoption of TSTF-478, Revision 2 - BWR Technical Specification Changes that Implement the Revised Rule for Combustible Gas Control

Ladies and Gentlemen:

In accordance with the Code of Federal Regulations, Title 10, Part 50.90, Carolina Power & Light Company (CP&L), now doing business as Progress Energy Carolinas, Inc., is requesting a revision to the Technical Specifications (TS) for the Brunswick Steam Electric Plant (BSEP), Unit Nos. 1 and 2.

The proposed amendment would delete TS 3.6.3.2, "Containment Atmosphere Dilution (CAD) System," and the associated Bases that will result in modifications to containment combustible gas control TS requirements as permitted by 10 CFR 50.44. This change is consistent with NRC approved Revision 2 to Technical Specification Task Force (TSTF) Improved Standard Technical Specification Change Traveler, TSTF– 478, "BWR Technical Specification Changes that Implement the Revised Rule for Combustible Gas Control." CP&L is adopting the TSTF-478, Revision 2, CAD System TS changes without variation except that the BSEP TS for the CAD System is TS 3.6.3.2 rather than TS 3.6.3.3 as provided in the TSTF mark-ups. TSTF-478 Revision 2 also makes TS and associated Bases changes for the TS section on Drywell Cooling System Fans. Since BSEP TSs do not have this TS section, these changes are not needed. The availability of this TS improvement was announced in the Federal Register on November 21, 2007 (72 FR 65610), as part of the consolidated line item improvement process (CLIIP).

Enclosure 1 provides an evaluation of the proposed change. Enclosure 2 provides the existing Unit 1 TS pages marked-up to show the proposed change. The same TS changes are being requested for Unit 2. Enclosures 3 and 4 provide the proposed TS changes in final typed format for Units 1 and 2, respectively. Enclosure 5 provides the existing Unit 1 TS Bases pages marked-up to show the proposed changes. Identical changes will be made for the Unit 2 TS Bases. These Bases pages are being submitted for information only and do not require issuance by the NRC.

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NRR

CP&L requests approval of the proposed amendments by May 29, 2009, and that once approved, the amendments shall be implemented within 60 days.

CP&L is providing, in accordance with 10 CFR 50.91, a copy of the proposed license amendment to the designated representative for the State of North Carolina.

No regulatory commitments are associated with this submittal. Please refer any questions regarding this submittal to Mr. Gene Atkinson, Supervisor - Licensing/Regulatory Programs, at (910) 457-2056.

I declare, under penalty of perjury, that the foregoing is true and correct. Executed on November 24, 2008.

Sincerely,

Benjamin C. Waldrep

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Enclosures:

1. Evaluation of Proposed License Amendment Requests
2. Marked-up Technical Specification Pages - Unit 1
3. Typed Technical Specification Pages - Unit 1
4. Typed Technical Specification Pages - Unit 2
5. Marked-up Technical Specification Bases Pages - Unit 1 (For Information Only)

cc (with enclosures):

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Evaluation of Proposed License Amendment Request

Subject: Request for License Amendment - Adoption of TSTF-478, Revision 2 - BWR Technical Specification Changes that Implement the Revised Rule for Combustible Gas Control

1.0 Description

This letter is a request by Carolina Power & Light Company (CP&L), now doing business as Progress Energy Carolinas, Inc., to amend the Technical Specifications (TS) of Renewed Facility Operating Licenses DPR-71 and DPR-62 for the Brunswick Steam Electric Plant (BSEP), Unit Nos. 1 and 2.

The proposed amendment would delete TS 3.6.3.2, "Containment Atmosphere Dilution (CAD) System," and the associated Bases that will result in modifications to containment combustible gas control TS requirements as permitted by 10 CFR 50.44. This change is consistent with NRC approved Revision 2 to Technical Specification Task Force (TSTF) Improved Standard Technical Specification Change Traveler, TSTF-478, "BWR Technical Specification Changes that Implement the Revised Rule for Combustible Gas Control." The availability of this TS improvement was announced in the Federal Register on November 21, 2007 (72 FR 65610) as part of the consolidated line item improvement process (CLIIP).

2.0 Proposed Changes

Consistent with the NRC approved Revision 2 of TSTF-478, the proposed TS changes delete TS 3.6.3.2, "Containment Atmosphere Dilution (CAD) System." Proposed revisions to the TS Bases are also included in this application. Adoption of the TS Bases associated with TSTF–478, Revision 2 is an integral part of implementing this TS amendment. The changes to the affected TS Bases pages will be incorporated in accordance with the TS Bases Control Program.

This application is being made in accordance with the CLIIP. CP&L is proposing two minor variations from the TS changes described in TST4-478, Revision 2, and the NRC staff's model safety evaluation (SE) published on November 21, 2007 (72 FR 65610), as part of the CLIIP Notice of Availability. First, the BSEP TS for the CAD System is TS 3.6.3.2 rather than TS 3.6.3.3 as provided in the TSTF mark-ups. Second, TSTF-478 Revision 2 also makes TS and Bases changes for the TS section on Drywell Cooling System Fans. Since BSEP TSs do not have this TS section, these changes are not needed.

3.0 Background

The background for this application is adequately addressed by the NRC Notice of Availability published on November 21, 2007 (72 FR 65610).

4.0 Technical Analysis

CP&L has reviewed the SE published on November 21, 2007 (72 FR 65610), as part of the CLIIP Notice of Availability. CP&L has concluded that the technical justifications presented in the SE prepared by the NRC staff are applicable to BSEP Units 1 and 2 and, therefore, justify this amendment for the incorporation of the proposed changes to the BSEP TS.

5.0 Regulatory Safety Analysis

5.1 No Significant Hazards Consideration Determination

CP&L has reviewed the no significant hazards determination published on November 21, 2007 (72 FR 65610), as part of the CLIIP Notice of Availability. CP&L has concluded that the determination presented in the notice is applicable to BSEP Units 1 and 2 and the determination is hereby incorporated by reference to satisfy the requirements of 10 CFR 50.91(a).

5.2 Applicable Regulatory Requirements/Criteria

A description of the proposed TS change and its relationship to applicable regulatory requirements was provided in the NRC Notice of Availability published on November 21, 2007 (72 FR 65610).

6.0 Environmental Evaluation

CP&L has reviewed the environmental evaluation included in the safety evaluation (SE) published on November 21, 2007 (72 FR 65610), as part of the CLIIP Notice of Availability. CP&L has concluded that the staff's findings presented in that evaluation are applicable to BSEP Units 1 and 2 and the evaluation is hereby incorporated by reference for this application.

7.0 References

1. Federal Register Notice, Notice of Availability published on November 21, 2007 (72 FR 65610).

2. TSTF-478 Revision 2, "BWR Technical Specification Changes that Implement the Revised Rule for Combustible Gas Control."

Markup of Technical Specification Pages - Unit 1

3.6 CONTAINMENT SYSTEMS

3.6.3.2 Containment Atmosphere Dilution (CAD) System

~~LCO 3.6.3.2 CAD System shall be OPERABLE.~~

APPLICABILITY: MODE 1 during the time period:

a. From 24 hours after THERMAL POWER is > 15% RTP following startup, to

b. 24 hours prior to a scheduled reduction of THERMAL POWER to < 15% RTP.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. CAD System inoperable.	A.1 Restore CAD System to OPERABLE status.	31 days
B. Required Action and associated Completion Time not met.	C.1 Be in MODE 2.	8 hours

The requirement for the CAD System is deleted.

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.6.3.2.1	Verify ≥ 4350 gal of liquid nitrogen are contained in the CAD System.	31 days
SR 3.6.3.2.2	Verify each CAD subsystem manual, power operated, and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position or can be aligned to the correct position.	31 days
SR 3.6.3.2.3	Cycle each power operated, excluding automatic, valve in the flow path through one complete cycle.	24 months

Page deleted

3.6 CONTAINMENT SYSTEMS

3.6.4.1 Secondary Containment

LCO 3.6.4.1 The secondary containment shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,

During movement of recently irradiated fuel assemblies in the secondary containment,

During operations with a potential for draining the reactor vessel (OPDRVs).

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Secondary containment inoperable in MODE 1, 2, or 3.	A.1	Restore secondary containment to OPERABLE status.	8 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1	Be in MODE 3.	12 hours
	AND		
	B.2	Be in MODE 4.	36 hours
C. Secondary containment inoperable during movement of recently irradiated fuel assemblies in the secondary containment, or during OPDRVs.	C.1	----------NOTE---------- LCO 3.0.3 is not applicable. ----------	
		Suspend movement of recently irradiated fuel assemblies in the secondary containment.	Immediately
	AND		

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. (continued)	C.2 Initiate action to suspend OPDRVs.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.4.1.1	Verify all secondary containment equipment hatches are closed and sealed.	24 months
SR 3.6.4.1.2	Verify one secondary containment access door is closed in each access opening.	24 months
SR 3.6.4.1.3	Verify each SGT subsystem can maintain ≥ 0.25 inch of vacuum water gauge in the secondary containment for 1 hour at a flow rate ≤ 3000 cfm.	24 months on a STAGGERED TEST BASIS

3.6 CONTAINMENT SYSTEMS

3.6.4.2 Secondary Containment Isolation Dampers (SCIDs)

LCO 3.6.4.2 Each SCID shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,

During movement of recently irradiated fuel assemblies in the secondary containment,

During operations with a potential for draining the reactor vessel (OPDRVs).

ACTIONS

----------NOTES----------

1. Penetration flow paths may be unisolated intermittently under administrative controls.
2. Separate Condition entry is allowed for each penetration flow path.
3. Enter applicable Conditions and Required Actions for systems made inoperable by SCIDs.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more penetration flow paths with one SCID inoperable.	A.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic damper, closed manual damper, or blind flange. AND	8 hours (continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2 ----------NOTE---------- Isolation devices in high radiation areas may be verified by use of administrative means. ---------- Verify the affected penetration flow path is isolated.	Once per 92 days
B. ----------NOTE---------- Only applicable to penetration flow paths with two isolation dampers. ---------- One or more penetration flow paths with two SCIDs inoperable.	B.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic damper, closed manual damper, or blind flange.	4 hours
C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, or 3.	C.1 Be in MODE 3. AND C.2 Be in MODE 4.	12 hours 36 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time of Condition A or B not met during movement of recently irradiated fuel assemblies in the secondary containment or during OPDRVs.	D.1 ----------NOTE---------- LCO 3.0.3 is not applicable. ---------- Suspend movement of recently irradiated fuel assemblies in the secondary containment.	Immediately
	AND	
	D.2 Initiate action to suspend OPDRVs.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.4.2.1	Verify the isolation time of each automatic SCID is within limits.	24 months
SR 3.6.4.2.2	Verify each automatic SCID actuates to the isolation position on an actual or simulated actuation signal.	24 months

3.6 CONTAINMENT SYSTEMS

3.6.4.3 Standby Gas Treatment (SGT) System

LCO 3.6.4.3 Two SGT subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,

During movement of recently irradiated fuel assemblies in the secondary containment,

During operations with a potential for draining the reactor vessel (OPDRVs).

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One SGT subsystem inoperable in MODE 1, 2 or 3.	A.1 Restore SGT subsystem to OPERABLE status.	7 days
B. Required Action and associated Completion Time of Condition A not met. OR Two SGT subsystems inoperable in MODE 1, 2, or 3.	B.1 Be in MODE 3. AND B.2 Be in MODE 4.	12 hours 36 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One SGT subsystem inoperable during movement of recently irradiated fuel assemblies in the secondary containment or during OPDRVs.	C.1 Restore SGT subsystem to OPERABLE status.	31 days
D. Required Action and associated Completion Time of Condition C not met.	----------NOTE---------- LCO 3.0.3 is not applicable. ----------	
	D.1 Place OPERABLE SGT subsystem in operation.	Immediately
	OR	
	D.2.1 Suspend movement of recently irradiated fuel assemblies in secondary containment.	Immediately
	AND	
	D.2.2 Initiate action to suspend OPDRVs.	Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Two SGT subsystems inoperable during movement of recently irradiated fuel assemblies in the secondary containment or during OPDRVs.	E.1 ----------NOTE---------- LCO 3.0.3 is not applicable. ---------- Suspend movement of recently irradiated fuel assemblies in secondary containment.	Immediately
	AND	
	E.2 Initiate action to suspend OPDRVs.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.4.3.1	Operate each SGT subsystem for ≥ 10 continuous hours with heaters operating.	31 days
SR 3.6.4.3.2	Perform required SGT filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP
SR 3.6.4.3.3	Verify each SGT subsystem actuates on an actual or simulated initiation signal.	24 months

Typed Technical Specification Pages - Unit 1

3.6 CONTAINMENT SYSTEMS

3.6.3.2 Containment Atmosphere Dilution (CAD) System

The requirement for the CAD System is deleted.

3.6 CONTAINMENT SYSTEMS

3.6.4.1 Secondary Containment

LCO 3.6.4.1 The secondary containment shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,

During movement of recently irradiated fuel assemblies in the secondary containment,

During operations with a potential for draining the reactor vessel (OPDRVs).

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Secondary containment inoperable in MODE 1, 2, or 3.	A.1	Restore secondary containment to OPERABLE status.	8 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1	Be in MODE 3.	12 hours
	AND		
	B.2	Be in MODE 4.	36 hours
C. Secondary containment inoperable during movement of recently irradiated fuel assemblies in the secondary containment, or during OPDRVs.	C.1	----------NOTE---------- LCO 3.0.3 is not applicable. ---------- Suspend movement of recently irradiated fuel assemblies in the secondary containment.	Immediately
	AND		
			(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. (continued)	C.2 Initiate action to suspend OPDRVs.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.4.1.1	Verify all secondary containment equipment hatches are closed and sealed.	24 months
SR 3.6.4.1.2	Verify one secondary containment access door is closed in each access opening.	24 months
SR 3.6.4.1.3	Verify each SGT subsystem can maintain ≥ 0.25 inch of vacuum water gauge in the secondary containment for 1 hour at a flow rate ≤ 3000 cfm.	24 months on a STAGGERED TEST BASIS

3.6 CONTAINMENT SYSTEMS

3.6.4.2 Secondary Containment Isolation Dampers (SCIDs)

LCO 3.6.4.2 Each SCID shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,

During movement of recently irradiated fuel assemblies in the secondary containment,

During operations with a potential for draining the reactor vessel (OPDRVs).

ACTIONS

----------NOTES----------

1. Penetration flow paths may be unisolated intermittently under administrative controls.
2. Separate Condition entry is allowed for each penetration flow path.
3. Enter applicable Conditions and Required Actions for systems made inoperable by SCIDs.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more penetration flow paths with one SCID inoperable.	A.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic damper, closed manual damper, or blind flange. AND	8 hours (continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2 ----------NOTE---------- Isolation devices in high radiation areas may be verified by use of administrative means. ---------- Verify the affected penetration flow path is isolated.	Once per 92 days
B. ----------NOTE---------- Only applicable to penetration flow paths with two isolation dampers. ---------- One or more penetration flow paths with two SCIDs inoperable.	B.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic damper, closed manual damper, or blind flange.	4 hours
C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, or 3.	C.1 Be in MODE 3. AND C.2 Be in MODE 4.	12 hours 36 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time of Condition A or B not met during movement of recently irradiated fuel assemblies in the secondary containment or during OPDRVs.	D.1 ----------NOTE---------- LCO 3.0.3 is not applicable. ---------- Suspend movement of recently irradiated fuel assemblies in the secondary containment.	Immediately
	AND	
	D.2 Initiate action to suspend OPDRVs.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.4.2.1	Verify the isolation time of each automatic SCID is within limits.	24 months
SR 3.6.4.2.2	Verify each automatic SCID actuates to the isolation position on an actual or simulated actuation signal.	24 months

3.6 CONTAINMENT SYSTEMS

3.6.4.3 Standby Gas Treatment (SGT) System

LCO 3.6.4.3 Two SGT subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,

During movement of recently irradiated fuel assemblies in the secondary containment,

During operations with a potential for draining the reactor vessel (OPDRVs).

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One SGT subsystem inoperable in MODE 1, 2 or 3.	A.1 Restore SGT subsystem to OPERABLE status.	7 days
B. Required Action and associated Completion Time of Condition A not met. OR Two SGT subsystems inoperable in MODE 1, 2, or 3.	B.1 Be in MODE 3. AND B.2 Be in MODE 4.	12 hours 36 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One SGT subsystem inoperable during movement of recently irradiated fuel assemblies in the secondary containment or during OPDRVs.	C.1 Restore SGT subsystem to OPERABLE status.	31 days
D. Required Action and associated Completion Time of Condition C not met.	----------NOTE---------- LCO 3.0.3 is not applicable. ----------	
	D.1 Place OPERABLE SGT subsystem in operation.	Immediately
	OR	
	D.2.1 Suspend movement of recently irradiated fuel assemblies in secondary containment.	Immediately
	AND	
	D.2.2 Initiate action to suspend OPDRVs.	Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Two SGT subsystems inoperable during movement of recently irradiated fuel assemblies in the secondary containment or during OPDRVs.	E.1 ----------NOTE---------- LCO 3.0.3 is not applicable. ---------- Suspend movement of recently irradiated fuel assemblies in secondary containment.	Immediately
	AND	
	E.2 Initiate action to suspend OPDRVs.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.4.3.1	Operate each SGT subsystem for ≥ 10 continuous hours with heaters operating.	31 days
SR 3.6.4.3.2	Perform required SGT filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP
SR 3.6.4.3.3	Verify each SGT subsystem actuates on an actual or simulated initiation signal.	24 months

Typed Technical Specification Pages - Unit 2

3.6 CONTAINMENT SYSTEMS

3.6.3.2 Containment Atmosphere Dilution (CAD) System

The requirement for the CAD System is deleted.

3.6 CONTAINMENT SYSTEMS

3.6.4.1 Secondary Containment

LCO 3.6.4.1 The secondary containment shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,

During movement of recently irradiated fuel assemblies in the secondary containment,

During operations with a potential for draining the reactor vessel (OPDRVs).

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Secondary containment inoperable in MODE 1, 2, or 3.	A.1	Restore secondary containment to OPERABLE status.	8 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1	Be in MODE 3.	12 hours
	AND		
	B.2	Be in MODE 4.	36 hours
C. Secondary containment inoperable during movement of recently irradiated fuel assemblies in the secondary containment, or during OPDRVs.	C.1	----------NOTE---------- LCO 3.0.3 is not applicable. ---------- Suspend movement of recently irradiated fuel assemblies in the secondary containment.	Immediately
	AND		
			(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. (continued)	C.2 Initiate action to suspend OPDRVs.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.4.1.1	Verify all secondary containment equipment hatches are closed and sealed.	24 months
SR 3.6.4.1.2	Verify one secondary containment access door is closed in each access opening.	24 months
SR 3.6.4.1.3	Verify each SGT subsystem can maintain ≥ 0.25 inch of vacuum water gauge in the secondary containment for 1 hour at a flow rate ≤ 3000 cfm.	24 months on a STAGGERED TEST BASIS

3.6 CONTAINMENT SYSTEMS

3.6.4.2 Secondary Containment Isolation Dampers (SCIDs)

LCO 3.6.4.2 Each SCID shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,

During movement of recently irradiated fuel assemblies in the secondary containment,

During operations with a potential for draining the reactor vessel (OPDRVs).

ACTIONS

----------NOTES----------

1. Penetration flow paths may be unisolated intermittently under administrative controls.
2. Separate Condition entry is allowed for each penetration flow path.
3. Enter applicable Conditions and Required Actions for systems made inoperable by SCIDs.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more penetration flow paths with one SCID inoperable.	A.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic damper, closed manual damper, or blind flange. AND	8 hours (continued)

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. (continued)	A.2	----------NOTE---------- Isolation devices in high radiation areas may be verified by use of administrative means. ---------- Verify the affected penetration flow path is isolated.	Once per 92 days
B. ----------NOTE---------- Only applicable to penetration flow paths with two isolation dampers. ---------- One or more penetration flow paths with two SCIDs inoperable.	B.1	Isolate the affected penetration flow path by use of at least one closed and de-activated automatic damper, closed manual damper, or blind flange.	4 hours
C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, or 3.	C.1	Be in MODE 3.	12 hours
	AND		
	C.2	Be in MODE 4.	36 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. Required Action and associated Completion Time of Condition A or B not met during movement of recently irradiated fuel assemblies in the secondary containment or during OPDRVs.	D.1	----------NOTE---------- LCO 3.0.3 is not applicable. ---------- Suspend movement of recently irradiated fuel assemblies in the secondary containment.	Immediately
	AND		
	D.2	Initiate action to suspend OPDRVs.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.4.2.1	Verify the isolation time of each automatic SCID is within limits.	24 months
SR 3.6.4.2.2	Verify each automatic SCID actuates to the isolation position on an actual or simulated actuation signal.	24 months

3.6 CONTAINMENT SYSTEMS

3.6.4.3 Standby Gas Treatment (SGT) System

LCO 3.6.4.3 Two SGT subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,

During movement of recently irradiated fuel assemblies in the secondary containment,

During operations with a potential for draining the reactor vessel (OPDRVs).

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One SGT subsystem inoperable in MODE 1, 2 or 3.	A.1 Restore SGT subsystem to OPERABLE status.	7 days
B. Required Action and associated Completion Time of Condition A not met. OR Two SGT subsystems inoperable in MODE 1, 2, or 3.	B.1 Be in MODE 3. AND B.2 Be in MODE 4.	12 hours 36 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One SGT subsystem inoperable during movement of recently irradiated fuel assemblies in the secondary containment or during OPDRVs.	C.1 Restore SGT subsystem to OPERABLE status.	31 days
D. Required Action and associated Completion Time of Condition C not met.	----------NOTE---------- LCO 3.0.3 is not applicable. ----------	
	D.1 Place OPERABLE SGT subsystem in operation.	Immediately
	OR	
	D.2.1 Suspend movement of recently irradiated fuel assemblies in secondary containment.	Immediately
	AND	
	D.2.2 Initiate action to suspend OPDRVs.	Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Two SGT subsystems inoperable during movement of recently irradiated fuel assemblies in the secondary containment or during OPDRVs.	E.1 ----------NOTE---------- LCO 3.0.3 is not applicable. ---------- Suspend movement of recently irradiated fuel assemblies in secondary containment.	Immediately
	AND	
	E.2 Initiate action to suspend OPDRVs.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.4.3.1	Operate each SGT subsystem for ≥ 10 continuous hours with heaters operating.	31 days
SR 3.6.4.3.2	Perform required SGT filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP
SR 3.6.4.3.3	Verify each SGT subsystem actuates on an actual or simulated initiation signal.	24 months

Marked-up Technical Specification Bases Pages - Unit 1
(For Information Only)

B 3.6 CONTAINMENT SYSTEMS

B 3.6.3.1 Primary Containment Oxygen Concentration

BASES

BACKGROUND

The primary containment is designed to withstand events that generate hydrogen either due to the zirconium metal water reaction in the core or due to radiolysis. The primary method to control hydrogen is to inert the primary containment. With the primary containment inert, that is, oxygen concentration < 4.0 volume percent (v/o), a combustible mixture cannot be present in the primary containment for any hydrogen concentration. ~~The capability to inert the primary containment and maintain oxygen < 4.0 v/o works together with the Containment Atmosphere Dilution System (LCO 3.6.3.2, "Containment Atmosphere Dilution (CAD) System") to provide redundant and diverse methods to mitigate events that produce hydrogen and oxygen.~~ For example, an event that rapidly generates hydrogen from zirconium metal water reaction could result in excessive hydrogen in primary containment, but oxygen concentration will remain < 5.0 v/o and no combustion can occur. ~~Long term generation of both hydrogen and oxygen from radiolytic decomposition of water may eventually result in a combustible mixture in primary containment if the initial primary containment oxygen concentration exceeded 4.0 v/o during operation in the applicable conditions.~~ This LCO ensures that oxygen concentration does not exceed 4.0 v/o during operation in the applicable conditions.

APPLICABLE SAFETY ANALYSES

The Reference 1 calculations assume that the primary containment is inerted when a Design Basis Accident (DBA) loss of coolant accident occurs. Thus, the hydrogen assumed to be released to the primary containment as a result of metal water reaction in the reactor core will not produce combustible gas mixtures in the primary containment. ~~Oxygen, which is subsequently generated by radiolytic decomposition of water, is diluted by the CAD System more rapidly than it is produced.~~

Primary containment oxygen concentration satisfies Criterion 2 of 10 CFR 50.36(c)(2)(ii) (Ref. 2).

(continued)

BASES (continued)

LCO	The primary containment oxygen concentration is maintained < 4.0 v/o to ensure that an event that produces any amount of hydrogen and oxygen does not result in a combustible mixture inside primary containment.
APPLICABILITY	The primary containment oxygen concentration must be within the specified limit when primary containment is inerted, except as allowed by the relaxations during startup and shutdown addressed below. The primary containment must be inert in MODE 1, since this is the condition with the highest probability of an event that could produce hydrogen and oxygen. Inerting the primary containment is an operational problem because it prevents containment access without an appropriate breathing apparatus. Therefore, the primary containment is inerted as late as possible in the plant startup and de-inerted as soon as possible during a scheduled power reduction to ≤ 15% RTP. As long as reactor power is ≤ 15% RTP, the potential for an event that generates significant hydrogen and oxygen is low and the primary containment need not be inert. Furthermore, the probability of an event that generates hydrogen occurring within the first 24 hours of a startup, or within the last 24 hours before a scheduled power reduction ≤ 15% RTP, is low enough that these "windows," when the primary containment is not inerted, are also justified. The 24 hour time period is a reasonable amount of time to allow plant personnel to perform inerting or de-inerting.
ACTIONS	A.1 If oxygen concentration is ≥ 4.0 v/o at any time while operating in MODE 1, with the exception of the relaxations allowed during startup and shutdown, oxygen concentration must be restored to < 4.0 v/o within 24 hours. The 24 hour Completion Time is allowed when oxygen concentration is ≥ 4.0 v/o because of the availability of other hydrogen and oxygen mitigating systems ~~(e.g., Containment Atmosphere Dilution System)~~ and the low probability and long duration of an event that would generate significant amounts of hydrogen and oxygen occurring during this period.

(continued)

B 3.6 CONTAINMENT SYSTEMS

B 3.6.3.2 Containment Atmosphere Dilution (CAD) System

BASES

BACKGROUND	The CAD System functions to maintain combustible gas concentrations within the primary containment at or below the flammability limits following a postulated loss of coolant accident (LOCA) by diluting hydrogen and oxygen with nitrogen. To ensure that a combustible gas mixture does not occur, oxygen concentration is kept < 5.0 volume percent (v/o). The CAD System is manually initiated and consists of two 100% capacity subsystems. Each subsystem consists of a common liquid nitrogen supply tank, an electric vaporizer, and connected piping to supply the drywell and suppression chamber volumes. The liquid nitrogen supply tank and electric vaporizers are common components which are shared between the CAD subsystems of the two units. Piping from the liquid nitrogen supply tank downstream of the vaporizers is split and routed to each unit. Each pipe to a particular unit is divided to provide the capability to supply nitrogen to both the drywell and the suppression chamber. The nitrogen storage tank contains ≥ 4350 gal, which is adequate for 30 days of CAD subsystem operation. The CAD System operates in conjunction with emergency operating procedures that are used to reduce primary containment pressure periodically during CAD System operation. This combination results in a feed and bleed approach to maintaining hydrogen and oxygen concentrations below combustible levels.
APPLICABLE SAFETY ANALYSES	To evaluate the potential for hydrogen and oxygen accumulation in primary containment following a LOCA, hydrogen and oxygen generation is calculated (as a function of time following the initiation of the accident). The assumptions stated in Reference 1 are used to maximize the amount of hydrogen and oxygen generated. The calculation confirms that when the mitigating systems are actuated in accordance with emergency operating procedures, the peak oxygen concentration in primary containment is < 5.0 v/o (Ref. 2). (continued)

The requirement for the CAD System is deleted.

BASES

APPLICABLE SAFETY ANALYSES (continued)

Hydrogen and oxygen may accumulate within primary containment following a LOCA as a result of:

a. A metal water reaction between the zirconium fuel rod cladding and the reactor coolant; or

b. Radiolytic decomposition of water in the Reactor Coolant System.

The CAD System satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii) (Ref. 3).

LCO

The CAD System (two CAD subsystems) must be OPERABLE with an OPERABLE flow path capable of supplying nitrogen to the drywell. This ensures operation of at least one CAD subsystem in the event of a worst case single active failure. Operation of at least one CAD subsystem is designed to maintain primary containment post-LOCA oxygen concentration < 5.0 v/o for 30 days.

APPLICABILITY

In MODE 1 when primary containment oxygen concentration is required to be < 4.0 v/o (i.e., primary containment inerted) in accordance with LCO 3.6.3.1, "Primary Containment Oxygen Concentration," the CAD System is required to maintain the oxygen concentration within primary containment below the flammability limit of 5.0 v/o following a LOCA. This ensures that the relative leak tightness of primary containment is adequate and prevents damage to safety related equipment and instruments located within primary containment.

In MODE 1, when primary containment oxygen concentration is not required to be < 4.0 v/o in accordance with LCO 3.6.3.1, "Primary Containment Oxygen Concentration," and in MODE 2, the potential for an event that generates significant hydrogen and oxygen is low, the primary containment need not be inert, and the CAD System is not required to be OPERABLE. Furthermore, the probability of an event that generates hydrogen occurring within the first 24 hours of a startup, or within the last 24 hours before a scheduled power reduction < 15% RTP (i.e., when primary containment oxygen concentration is not required to be < 4.0 v/o in accordance with LCO 3.6.3.1), is low enough that these "windows," when the primary containment is not inerted and the CAD System is not required to be OPERABLE, are also justified.

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BASES

APPLICABILITY (continued)

In MODE 3, both the hydrogen and oxygen production rates and the total amounts produced after a LOCA would be less than those calculated for the Design Basis Accident LOCA. Thus, if the analysis were to be performed starting with a LOCA in MODE 3, the time to reach a flammable concentration would be extended beyond the time conservatively calculated for MODE 1. The extended time would allow hydrogen removal from the primary containment atmosphere by other means and also allow repair of an inoperable CAD subsystem, if CAD were not available. Therefore, the CAD System is not required to be OPERABLE in MODE 3.

In MODES 4 and 5, the probability and consequences of a LOCA are reduced due to the pressure and temperature limitations of these MODES. Therefore, the CAD System is not required to be OPERABLE in MODES 4 and 5.

ACTIONS

A.1

If the CAD System (one or both subsystems) is inoperable, it must be restored to OPERABLE status within 31 days. In this Condition, the oxygen control function of the CAD System is lost. However, alternate oxygen control capabilities may be provided by the Containment Inerting System. The 31 day Completion Time is based on the low probability of the occurrence of a LOCA that would generate hydrogen and oxygen in amounts capable of exceeding the flammability limit, the amount of time available after the event for operator action to prevent exceeding this limit, and the availability of other hydrogen mitigating systems.

B.1

If Required Action A.1 cannot be met within the associated Completion Time, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 2 within 8 hours. The allowed Completion Time of 8 hours is reasonable, based on operating experience, to reach MODE 2 from full power conditions in an orderly manner and without challenging plant systems.

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BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.6.3.2.1

Verifying that there is ≥ 4350 gal of liquid nitrogen supply in the CAD System will ensure at least 29 days of post-LOCA CAD operation. This minimum volume of liquid nitrogen allows sufficient time after an accident to replenish the nitrogen supply for long term inerting. This is verified every 31 days to ensure that the system is capable of performing its intended function when required. The 31 day Frequency is based on operating experience, which has shown 31 days to be an acceptable period to verify the liquid nitrogen supply and on the availability of other hydrogen mitigating systems.

SR 3.6.3.2.2

Verifying the correct alignment for manual, power operated, and automatic valves in each of the CAD subsystem flow paths provides assurance that the proper flow paths exist for system operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position, since these valves were verified to be in the correct position prior to locking, sealing, or securing.

A valve is also allowed to be in the nonaccident position provided it can be aligned to the accident position within the time assumed in the accident analysis. This is acceptable because the CAD System is manually initiated. This SR does not apply to valves that cannot be inadvertently misaligned, such as check valves. This SR does not require any testing or valve manipulation; rather, it involves verification that those valves capable of being mispositioned are in the correct position.

The 31 day Frequency is appropriate because the valves are operated under procedural control, improper valve position would only affect a single subsystem, the probability of an event requiring initiation of the system is low, and the system is a manually initiated system.

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BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.3.2.3

Cycling each power operated valve, excluding automatic valves, in the CAD System flow path through one complete cycle of full travel demonstrates that the valves are mechanically OPERABLE and will function when required. While this Surveillance may be performed with the reactor at power, the 24 month Frequency of the Surveillance is intended to be consistent with expected fuel cycle lengths. Operating experience has demonstrated that these components will pass this Surveillance when performed at the 24 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

REFERENCES

1. Safety Guide 7, March 1971.
2. UFSAR, Section 6.2.5.3.2.1, Amendment No. 9.
3. 10 CFR 50.36(c)(2)(ii).
4. UFSAR, Table 6-11.

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